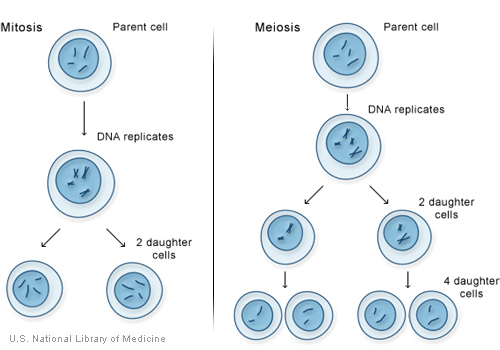
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| **GUIDED NOTES: Meiosis (Reduction Division)** | |
| **TYPES OF REPRODUCTION**  **ASEXUAL**              Examples: Binary Fission, Fragmentation, and Budding  **SEXUAL**      http://www.visualphotos.com/photo/1x6346146/binary_fission_7W6403.jpg | Organisms which reproduce sexually are made up of two different types of cells.   1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Body cells with a diploid number (2N) of chromosomes   Example:  **\*\*What process produces somatic cells?**   1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Sex cells with a haploid number (N) of chromosomes   Example:  **\*\*What process produces gametes?** |
| **GAMETES**   1. **SPERM**  * Male Gamete  1. **OVUM** (plural= Ova)  * Female Gamete   [https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQCR13NqR-TWZ9y0h4wztS98Qa5uTZkeWtCIL1aMdsFwuBq3C2zfA](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=xEHwZAY-im65dM&tbnid=LhW_BE8s0fAOzM:&ved=0CAUQjRw&url=http://waynesword.palomar.edu/lmexer2a.htm&ei=4g_9Us7zB8TKrgHUzoCoDQ&bvm=bv.61190604,d.aWc&psig=AFQjCNE4XkKNczb_KTc_RPQLDqHLxZg9Dw&ust=1392402760059676) | **FERTILIZATION**  **Definition:**   * During ovulation, an ovum is released from the ovary and transported to an area where fertilization can occur * The result of fertilization is a fertilized egg known as a...   **Picture:** |
| **HOMOLOGOUS CHROMOSOMES**   * Pair of chromosomes (maternal & paternal) that is similar in shape & size. * Homologous pairs (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) carry genes controlling the same inherited traits. * Each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (position of a gene) is in the same position on homologues. * Humans have \_\_\_\_\_ pairs of homologous chromosomes.   untitled | \*\*Since a homologous pair of chromosomes consists of 4 chromatids, it is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \*\*Each set of homologous chromosomes consists of 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Autosomes**            **Sex Chromosomes**            **XY=**  **XX=** |
| **MEIOSIS**   * Process in which a single cell goes through \_\_\_\_\_ nuclear divisions to produce \_\_\_\_\_ haploid gametes * During meiosis, \_\_\_\_\_ cells are reduced to \_\_\_\_\_\_ cells * What would happen if meiosis did NOT occur? | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Egg production in females in which one daughter cells keeps all of the cytoplasm, while the other three receive only genetic material (barr/polar bodies)  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Sperm production in males in which cytoplasm and genetic material are divided evenly among the 4 cells; flagella are added after differentiation. |
| **INTERPHASE 1**   * Similar to interphase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Chromosomes replicate (S Phase) * Centriole pairs replicate * Nucleus and nucleolus are visible | **MEIOSIS 1**   * Characterized by the separation of homologous pairs of chromosomes * 4 stages |
| **PROPHASE 1**   * Chromosomes condense * Nuclear envelope disappears * Spindle forms * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs: Homologous chromosomes pair up to form a tetrad. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: 2 chromosomes or 4 chromatids * Crossing over occurs | **Draw a picture of SYNAPSIS.**  **CROSSING OVER:** segments of non-sister chromatids break & exchange genetic material creating genetic diversity  **Picture:** |
| **METAPHASE 1**    * Independent Assortment occurs (orientation of homologous pairs to poles is random) | **ANAPHASE 1**   * Homologues separate & move to opposite poles |
| **TELOPHASE 1**   * Nuclear envelope usually does NOT reform * Chromosome # in 2 new cells is now \_\_\_\_\_\_\_\_\_\_ because… * Cytokinesis may or may not occur | **MEIOSIS 2**    * Proceeds just like Mitosis * Starts & ends with… |

[](http://www.google.com/url?sa=i&source=images&cd=&cad=rja&docid=vxqqrODtM53HxM&tbnid=Js3s0SVNYu-MvM:&ved=0CAgQjRw&url=http://ghr.nlm.nih.gov/handbook/illustrations/mitosismeiosis&ei=coUBU6zUGM3O0QH8nIH4AQ&psig=AFQjCNF9oSZ9X9APQK4Dmgjn3dYn-rN2uA&ust=1392695026469936)

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**Time for a little practice…**

**Somatic Cells vs. Gametes:** Determine if the cells below are **SOMATIC (BODY) CELLS** or **GAMETES (SEX) CELLS**. If a cell is a **SOMATIC CELL**, write an **S** in the blank. If a cell is a **GAMETE**, write a **G** in the blank.

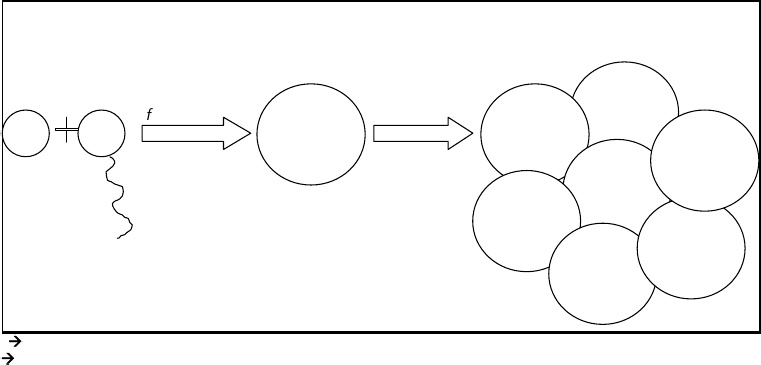
|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_ Adenoid Cell | \_\_\_\_\_ Epithelial Cell | \_\_\_\_\_ Zygote |
| \_\_\_\_\_ Ovum | \_\_\_\_\_ Heart Cell | \_\_\_\_\_ Skin Cell |
| \_\_\_\_\_ Pancreas Cell | \_\_\_\_\_ Squamous Cell | \_\_\_\_\_ Gallbladder Cell |
| \_\_\_\_\_ Sebaceous Cell | \_\_\_\_\_ Cilia Cell | \_\_\_\_\_ Brain Cell |

**Haploid vs. Diploid:** Determine if the cells below are **Haploid** or **Diploid**. If the cell is **Haploid**, write an **H** in the blank. If the cell is **Diploid**, write a **D** in the blank.

|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_ Lip Cell | \_\_\_\_\_ Cuticle Cell | \_\_\_\_\_ Sperm Cell |
| \_\_\_\_\_ Cone Cell | \_\_\_\_\_ Zygote | \_\_\_\_\_ Muscle Cell |
| \_\_\_\_\_ Ovum | \_\_\_\_\_ Sex Cell | \_\_\_\_\_ Epithelial Cell |

**Sentence Completion:** Circle the answer that best completes the sentences below.

1. Human skin cells are **HAPLOID/DIPLOID**.
2. Human skin cells contain **23/46** chromosomes.
3. Human skin cells are **SOMATIC/GAMETE** cells.
4. Human egg and sperm cells are **HAPLOID/DIPLOID**.
5. Human egg and sperm cells contain **23/46** chromosomes.
6. Human egg and sperm cells are **SOMATIC/GAMETE** cells.
7. After sperm fertilizes an egg, the resulting zygote has **23/46** chromosomes.

**Diagram:** Place the following words in the boxes below: Embryo, Gametes, Zygote. Then write the correct number of chromosomes that should be found in each of the human cells depicted in the diagram.